SandStar™

Serial Port Module

OWNER'S MANUAL

MAYNARD ELECTRONICS

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SANDSTAR ™
SERIAL PORT MODULE
Owner's manual

INTRODUCTION:

The SANDSTAR™ Serial Port Module is one of a family of products which allow modular growth of the IBM PC. This card is an asynchronous RS-232c type port which is completely compatible with the IBM Personal Computer. With this port a serial device such as a MODEM or serial Printer can be connected to the IBM PC. To use this port with the PC simply install it on one of MAYNARD's SANDSTAR™ Cards and plug it into the PC. No special software is required. The port can be set up as COM1: or COM2: (see your IBM manuals for definitions of COM1: & COM2:). Other SANDSTAR™ series modules and cards are described in the brochure enclosed with this product.

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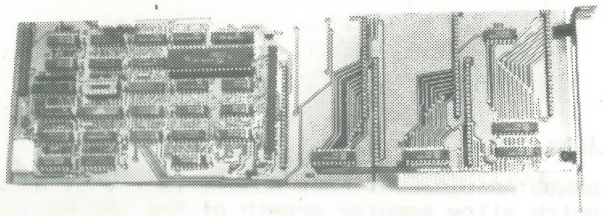
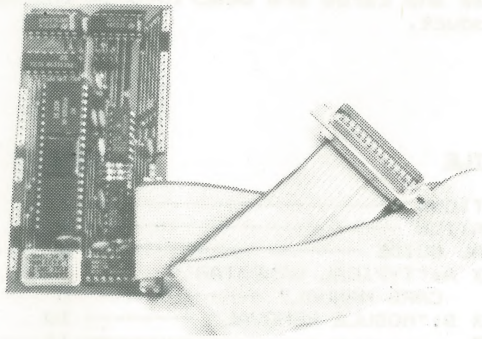
DEFINITIONS

Before installing the card lets review a few terms.

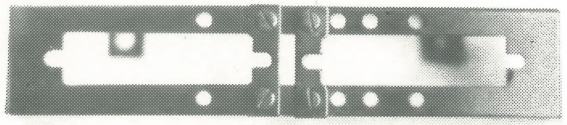
CARD - A SANDSTAR™ card is a printed wiring board which accepts modules to be plugged into the IBM PC.



MODULE - A SANDSTAR™ module is a smaller printed wiring board which can not be plugged directly into the PC. The module is plugged into a SANDSTAR™ card which is then plugged into the system.



MODULAR BRACKET - The SANDSTAR™ cards are shipped with a bracket which will accept connectors for the various modules.



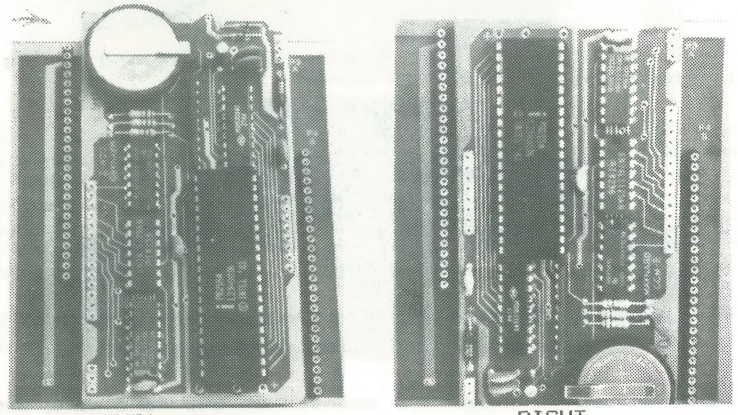
INSTALLATION:

MODULE INSTALLATION:

NOTE: Handle the module with care so as not to damage the pins on the module!

1) Follow the directions included with your SANDSTAR™ card until you get to the point where the module is to be inserted into the card. If you have lost the SANDSTAR™ card manual you will find a copy of the typical installation instructions for a SANDSTAR™ card included in the back of this manual.

2) Lay the SANDSTAR™ card on a flat surface with the socket strips facing up and the gold card edge connector facing toward you. Place the module so that the pins line up with any two rows of sockets on card. Before inserting the module make sure that it is located such that the top edge of the module is level with the top edge of the card . If not, turn it around until the pins line up with the sockets again. Make sure that all the pins are in line with their sockets and then push until the pins are inserted all the way into their sockets.



WRONG! RIGHT

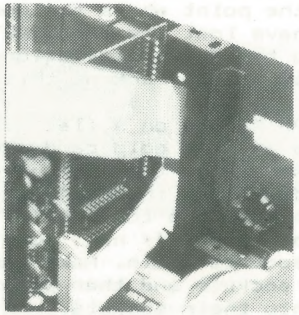
TYPICAL MODULE INSTALLATION

3) The module comes from the factory set up as COM1:. To change the module to COM2: move the jumper plugs as shown in drawing on sh.11.

4) Now install the assembled SANDSTAR™ card into the system using the instructions included with the card. Note that installing this modular card and assembling the cables to it may require removal of the cards next to it temporarily.

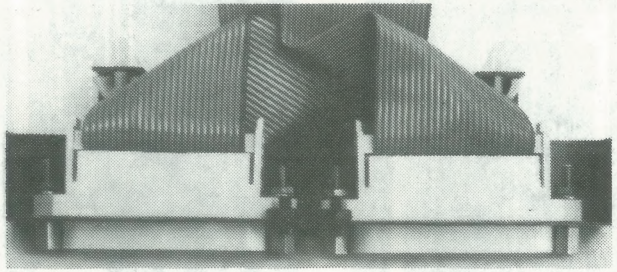
CABLE ASSEMBLY INSTRUCTIONS:

1) Take the cable included with the module and route the end with the smaller (26 pin) connector through the slot in the back of the computer where the SANDSTAR™ card is installed. Make sure the red edge of the cable is located toward the top of the computer.

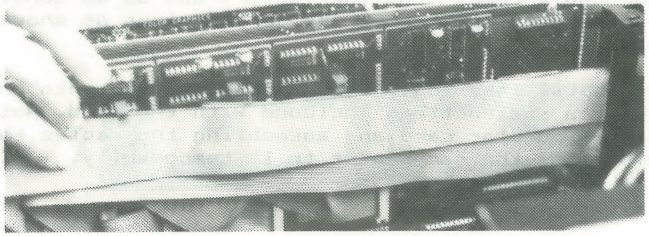


2) Plug the connector onto the double row of pins on the module.

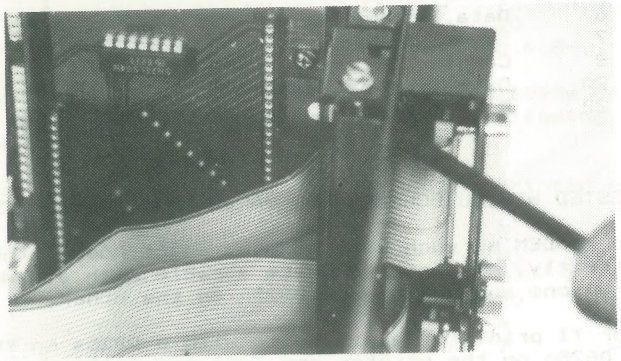
3) Mount the connector (25 pin) on the other end of the cable to the modular bracket as shown:



4) When several modules are mounted on one card care should be taken to route the cable so it lies as flat as possible next to the SANDSTAR™ card. See the following photo for an idea of how to route the cable.



5) Screw the modular bracket onto the holes of the bracket which is attached to the modular card. This is admittedly a very tight fit due to the amount of space involved. An alternative which may be easier would be to mount the modular bracket to the bracket on the modular card first and then to mount the cable connectors onto the modular bracket.



6) You are now ready to close up the computer. Note that if you did not use the SANDSTAR™ bracket for the connector at the end of the cable which is outside the PC it is supported only by the connector on the module inside the chassis. This is ok if care is taken not to tug on the cable. This module can be tested using IBM diagnostics. Go to the SANDSTAR™ card instruction sheet for instructions on finishing installation and testing the unit.

7) For instructions on using the parallel port see your Guide To Operations which you received with your computer.

TECHNICAL GUIDE:

The Serial port is configured as a Data Terminal Equipment port. The pinouts are as follows:

PIN	FUNCTION
1	Ground
2	Transmit Data
3	Receive Data
4	Request to Send
5	Clear to Send
6	Data Set Ready
7	Signal Ground
8	Carrier Detect
20	Data Terminal Ready
22	Ring Indicate

SUGGESTED WIRING SCHEMES FOR VARIOUS SERIAL DEVICES:

1) For MODEM's, such as the Hayes Smart Modem, the port will connect directly, pin for pin. Make a cable with a female DB25s connector on one end and a male DB25p on the other.

2) For TI printers make a cable with a DB25s on the MAYNARD end and a DB25p on the printer end. Use the following table to wire these connectors:

DB25s "MAYNARD end"		DB25p "printer end"
2	---------->	3
3	---------->	2
4	---------->	5
5	---------->	11
6	---------->	20
7	---------->	7
8	---------->	20
20	---------->	6 & 8

3) For NEC printers make a cable with a DB25s on the MAYNARD end and a DB25p on the printer end. Use the following table to wire these connectors:

DB25s "MAYNARD end"		DB25p "printer end"
2	---------->	3
3	---------->	2
4	---------->	5
5	---------->	19
6	---------->	20
7	---------->	7
8	---------->	20
20	---------->	6 & 8

4) For Qume printers make a cable with a DB25s on the MAYNARD end and a DB25p on the printer end. Use the following table to wire these connectors:

DB25s "MAYNARD end"		DB25p "printer end"
2	---------->	3
3	---------->	2
4	---------->	5
5	---------->	20
6	---------->	4
7	---------->	7
8	---------->	4
20	---------->	6 & 8

5) For devices that do not work with any of the above configurations the following configuration should be tried:

DB25s "MAYNARD end"		DB25p "printer end"
2	---------->	3
3	---------->	2
4	---------->	5
5	---------->	4
6	---------->	20
7	---------->	7
8	---------->	20
20	---------->	6 & 8

If the device you are connecting to does not use handshaking (i. e. it uses only the data leads, pins 2 & 3), the correct baud rate must be used with this port. See your DOS manual for setting baud rate.

APPENDIX A

SANDSTAR ™

TYPICAL CARD

Owner's manual

INSTALLATION:

1) Remove power from the computer.

2) Remove the two screws from the lower rear corners of the main cabinet to allow removal of the cover.

3) Slide the cover off the front of the computer.

4) If you have purchased floppy drives, install them at this time using the instructions included with them.

5) Remove one of the blank plates at the rear of the computer corresponding to the card slot closest to the power supply (rightmost slot from the front of the computer). Discard the plate (SAVE THE SCREW!).

6) Any SANDSTAR™ modules you may have purchased should be installed on the SANDSTAR™ card at this time. Refer to the installation instructions supplied with your module(s) for their installation.

7) Install the black plastic card guide in the holes in the front of the computer in line with the slot you are using. The tabs pop into the holes with considerable pressure and the tab with "Unitrack" written near it should go into the top hole.

8) Install the assembled card into the slot by sliding the front of the card in the card guide with the gold card edge fingers face down at the rear of the computer. Align the gold edge fingers with the connector in the computer and push the card into place. Reinstall the screw removed in step 5.

9) If you are installing a module requiring the Modular bracket (used with modules that must be connected to external equipment via cabling), follow the instructions included with the module for its installation.

10) Now carefully slide the cover onto the P. C. and replace the two screws which were removed in step 3.

11) You are now ready to power up. Go to section DOS 3 of your Guide to Operations and start her up! All boards have been

fully tested before leaving the factory, however, sometimes a problem will occur. If you should have a problem check your installation carefully and then go to the problem resolution section.

PROBLEM RESOLUTION

Use the following chart by locating the problem you are seeing in the first column and the recommended action in the second column.

PROBLEM	ACTION
NO CURSOR ON AT POWER ON	Remove power. Unplug CARD. Turn on power. If cursor does not return, problem is not in CARD. Check unplugged cables or monitor not plugged in. If cursor does return, problem is in CARD or one module. Remove one module at a time and reinstall CARD until bad module is found. If cursor does not return with all modules removed, then the CARD is bad. See warranty instructions.
DIAGNOSTICS DOES NOT IDENTIFY ALL MODULES	Check your module manual to see if module should be identified by diagnostics. If so, check for bent pins on module and plug into a different location on CARD. If pin is bent CAREFULLY straighten pin and reinstall. If module identifies in one location but not another location the CARD is likely bad. See warranty instructions. If module does not identify the module is likely bad. See module warranty instructions. Note:Diagnostics before V1.05 will not identify COM2:, LPT2:, or LPT3:
DIAGNOSTICS DOES NOT PASS FOR ANY MODULES ON CARD	Check that modules are plugged in correctly. If modules are plugged in correctly then the CARD is likely bad. See warranty instructions.
DIAGNOSTICS DOES NOT PASS ON ONLY ONE MODULE	Check that module is plugged in correctly with no bent pins. Make sure that you meet the proper conditions for the diagnostics tests.(i. e. no MODEM connected to serial port during test). Plug module into another location and rerun test. If module works in one location and not another the CARD is likely bad. If the module does not work in any position, the module is bad. See warranty instructions.

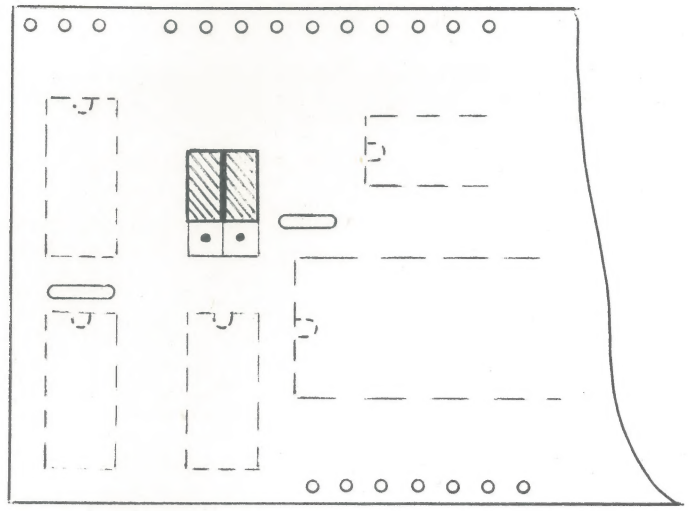
APPENDIX B

MODULE REMOVAL

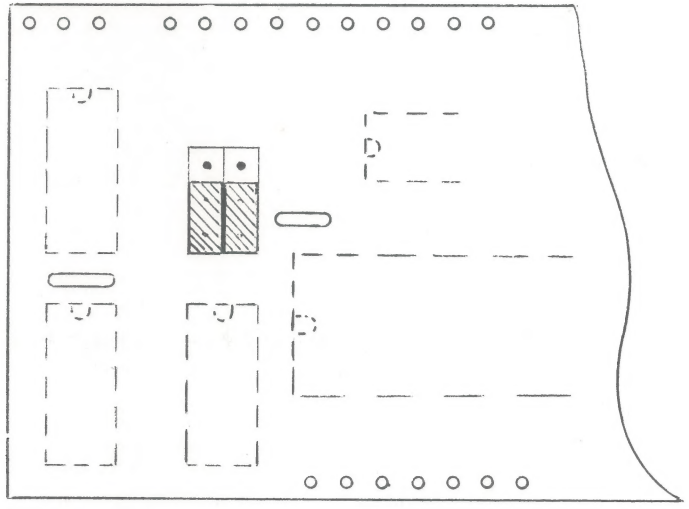
Special care should be taken to remove the modules from the SANDSTAR™ card. Enclosed with each card is a plastic red ruler. This ruler is used to protect the card from being scratched while removing the module. To remove the module, place the ruler on the card beneath the module. Next, take a flat bladed screwdriver and pry the module a little at a time end to end until the module is free. Make sure the ruler is under the tip of the screwdriver to protect the card. Also, be careful not to bend the pins on the module. If there is an IC device under the module which would prevent using the ruler, you can pry against the IC to loosen the module.

With proper care modules can be removed and inserted many times and remain reliable. If amodule should be damaged they can be returned to the manufacturer for repair at a nominal charge.

SERIAL PORT MODULE JUMPERS CONFIGURATION



COM-2



COM-1

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